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INFORMATION ON THE WESTERN PINE BEETLE
IN IDAHO AND MONTANA.

The western pine beetle (Dendroctonus brevicornis Lec.) attacks and kills healthy, mature western yellow pine. The adult insect, which is a rather stout, brownish, cylindrical bark beetle from one-eighth to one-fifth of an inch in length, bores through the bark and constructs a long, winding, irregular gallery in the thin layer of cells directly beneath the bark. This work is peculiar to this species, which makes its determination very easy. Along this gallery eggs are laid, which soon hatch into small, white, legless grubs, or larvae. These larvae excavate short larval mines or tunnels in the middle portion of the inner bark. When the larva becomes mature a cell is constructed in which the transformation to the adult beetle takes place.

During the transformation from the larva to the adult the insect is in the pupal or resting stage. When the transformation is complete the new adults bore emergence holes through the outer bark and soon after emergence attack other trees. The number of broods, or generations, per year varies in different regions, depending upon the length of the summer season. In areas where there are two generations the overwintering broods emerge in the spring and attack new trees. The broods from these mature in time to emerge and attack other trees before the winter or inactive season.

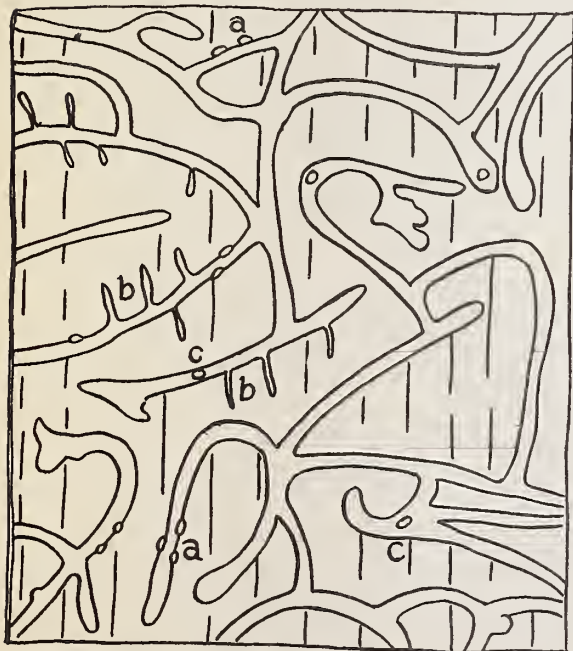
A large number of these egg galleries result in the girdling of the tree, and this causes its death. In order to kill a tree a large number of beetles must attack it to overcome its resistance. This attack usually extends throughout the merchantable length of the tree.

Insect-attacked trees can be distinguished by the discoloration of the foliage, by the boring dust at the base of the tree, or by the pitch exudations (pitch tubes) at the mouth of the entrance tunnels. The foliage of the trees attacked during the summer starts to fade within a few weeks, but those attacked during the fall show no discoloration until the winter months. The discoloration of the foliage will vary for different regions, so that it is necessary to examine the trees in order to distinguish between the trees containing insects and those from which the beetles have emerged.

After a tree has once been successfully attacked it can not be saved, but the broods can be destroyed and this will prevent subsequent attacks on other trees. Nature has provided enemies which assist in preventing and reducing epidemics of the western pine beetle but, under certain conditions, so-called normal degrees of infestation can develop into serious epidemics in a few generations.

As the development of the western pine beetle takes place within the inner bark, the destruction of the bark is necessary in order to destroy the broods. This can be accomplished by felling the trees and burning the peeled bark, or by severely scorching the entire unpeeled surface. If the bark is to be burned, it is only necessary to peel it from approximately half of the circumference, and then, if piled along the sides of the log, it can be burned very easily, the fire creeping underneath the log and completely burning the bark from the lower portion. It has been found that if the bark is peeled and the inner surface exposed to the direct rays of the sun, the insects will be killed, provided an air temperature of 80° to 90° F. is reached. With such an air temperature the bark temperature is raised to over 115° F., which is fatal to the western pine beetle broods within. This method is more expensive, however, and should be used only when the use of fire is impractical.

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The western pine beetle: a, Eggs;
b, larval mines; c, ventilation
holes. (Reduced).

